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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,023	03/26/2004	Norio Matsumoto	4415-0024	9819

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EXAMINER	
DANIELS, MATTHEW J	
ART UNIT	**PAPER NUMBER**
1732	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,023	MATSUMOTO ET AL.	
	Examiner	Art Unit	
	Matthew J. Daniels	1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *6-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicants' response filed 14 May 2007 has been entered. Claims 1-16 are pending in the instant application.

Election/Restrictions

2. This application contains claims 6-16 drawn to a non-elected invention without traverse in the response filed March 27, 2006.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy *et al.* (US Patent No. 6,352,662 B1) in view of Blackinton, Jr. (US Patent No. 6,299,810 B1).

Murphy *et al.* ('662) teach the basic claimed process for making a hollow fiber reinforced article including, providing a mandrel (50), wrapping said mandrel (50) with a bladder, wrapping said bladder with a plurality of fiber reinforced pre-preg plies (60,62) to form a wrapped assembly, placing said wrapped assembly in a mold (forming die) without or substantially contacting the forming die (space between items 60 and 70, also see "against" at 5:48), heating and pressurizing said pre-preg plies by introducing a pressurized gas through said mandrel, and

curing said pre-preg plies to thereby form said hollow fiber reinforced article (see col. 5, lines 21-58).

Regarding claim 1, Murphy *et al.* ('662) does not teach applying a vacuum in a vacuum chamber such that said plurality of fiber-reinforced pre-preg plies do not contact said mold. Blackinton, Jr. ('810) teaches a process for molding a fiber reinforced article including, providing a mandrel, a vacuum chamber and a pressing die (forming die), wrapping a plurality of pre-preg fibers about said mandrel to form an assembly, placing said assembly in a vacuum bag, drawing a vacuum onto said vacuum bag and said vacuum chamber such that the bag is kept off the fibers (composite body and forming die do not contact each other), collapsing said vacuum bag and, applying heat and pressure using said pressing die (clamping said forming die) to form said fiber reinforced article (see col. 4, line 38 through col. 5, line 9). Therefore, it would have been obvious for one of ordinary skill in the art to provide the vacuum bag and chamber to thereby apply a vacuum such that the bag is kept off the fibers as taught by Blackinton, Jr. ('810) in the process of Murphy *et al.* ('662) because Blackinton, Jr. ('810) specifically teaches that such a process allows for the removal of air bubbles from within the pre-preg material (see col. 4, lines 53-54), hence providing for reduced porosity and as such, providing for an improved product.

In regard to claim 2, Murphy et al. ('662) teach providing a mandrel (50), wrapping said mandrel (50) with a bladder and wrapping said bladder with a plurality of fiber reinforced pre-preg plies (60,62) to form a wrapped assembly (see col. 5, lines 21-58).

Specifically regarding claim 3, Murphy et al. ('662) teach heating and pressurizing said pre-preg plies by introducing a pressurized gas through said mandrel to thereby cure and form said hollow fiber reinforced article (see col. 5, lines 21-58).

Regarding claims 4 and 5, Murphy et al. ('662) teach removing said mandrel (50) after wrapping said plurality of fiber reinforced pre-preg plies (60,62) and connecting a source of pressurized gas (52) directly to said bladder (see col. 5, lines 39-42 and Figure 3). It is submitted that said pressurized gas source (52), as shown in Figure 5, includes a mouth-piece in order to connect directly to said bladder.

Response to Arguments

4. Applicant's arguments filed 15 May 2007 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

a) The vacuum chamber is evacuated with the composite body and the forming die not contacting each other. The combination of Murphy and Blackington fail to teach evacuating a vacuum chamber in an isolation state where the composite and forming die do not contact each other. In the Blackington method, the vacuum bag is caused to float above the carbon weave or same so that as air is drawn from the weave, the bag is kept off the weave. However, Applicants submit that causing a component to "float above" another does not mean that it completely floats over the entire surface. Applicants refer to Fig. 8B, which shows a platform or tray, and that at most Blackington's "floating bag" disclosure teaches that there would be negligible contact or, possibly, lack of contact between the bag and same only at the top.

b) Applicants further argue there is no motivation to provide the vacuum bag and chamber taught by Blackington to the process of Murphy. To do so would render Murphy inoperable and Murphy teaches away from such a replacement.

c) Neither reference teaches heating a vacuum bag.

d) Blackington first provides a rise in temperature of the carbon fiber weave, and then the vacuum in the vacuum chamber is reduced so that the bag is caused to compress tightly against the fiber weave. (Thus, Blackington teaches a different order of steps).

e) There is no reasonable expectation of success.

5. These arguments are not persuasive for the following reasons:

a) It is submitted that because Blackington pumps both the chamber and bag simultaneously, thereby causing the bag to float above the sample, that evacuation is performed in an isolation state where the composite and forming die do not contact each other. Applicants remarks argue against the plain meaning of "float" (4:52) and "bag is kept off the weave" (4:54) by asserting that it is only a possibility that there is a lack of contact between the bag (mold) and the article, and that any possible lack of contact would occur only on the top surface. However, this position is unsupported by evidence or the teaching of the reference, and in view of the contradictory teaching and suggestion of Blackington (4:52-54), it is submitted that arguments alone are insufficient to support the position advanced by Applicants.

Additionally, even if Applicants' position were determined to be correct in its characterization of the Blackington method, one of ordinary skill having knowledge of the Blackington method, and its beneficial and predictable results of removing air, voids, VOCS,

which cause bubbles or pockets, would have been motivated to provide supports such that the desired "floating" is achieved such that the entire "bag is kept off the weave". While Blackington does appear to provide something under the bag in Fig. 8B, there is no disclosure that this destroys the teaching to provide floating and keeping the bag off the weave.

b-d) In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In this case, the bag of Blackington and mold of Murphy provide a shaping and molding function, and are therefore interchangeable. Thus it is unclear why the combined process is asserted to be inoperable. Murphy requires a mold (6:48-51) which defines the cavity, which Blackington provides, motivating one to make the combination. Also note the teachings in Col. 10 of the Blackington reference, which appear to support the position of the interchangeability of the bag of Blackington for the mold of Murphy.

Both references teach that it is known to provide heating to cure the prepreg material, and Blackington provides a vacuum bag. Additionally, this argument is not commensurate with the scope of the instant claims.

It is submitted that in the Blackington method, the claimed order of steps is disclosed, namely evacuation with vacuum (4:61), clamping (4:64-65), and heating with an application of pressure (4:65-67). No distinction is believed to be present.

e) A reasonable expectation of success would be implicit in that Murphy teaches and requires a mold, Blackington provides a deformable mold, and the combination would provide the

predictable result of removing air, voids, VOCS, bubbles, and pockets, according to the method of Blackington.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJD 8/2/07

MJD

CHRISTINA JOHNSON
SUPERVISORY PATENT EXAMINER